Headquarters U.S. Air Force

Integrity - Service - Excellence

ESOH Resource Transformation

Maureen Koetz

SAF/IEE

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OVERVIEW

- Vision
- History/Background
- Challenges
- ESOH Transformation
- Transformation in Action

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ESOH VISION

- **ESOH must transform from compliance-based to capabilities-based**
- **ESOH programs sustain, restore and modernize resources, in a cost-effective manner, to ensure operational capability**
- **ESOHMS must be used to make overall better business decisions**
- **ESOHMS applies to all levels of the AF, not just the ESOH community - the warfighter is stakeholder #1**

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ENVIRONMENT HISTORY

- **Common Law Property Rights**
  - **Property owned from “Heavens to Hell”**
  - **Restraints on use couched in nuisance**
- **Development of Legislative and Administrative Law**
  - **Zoning**
  - **Sanitation**
  - **Conservation**
  - **Environmental Protection**
- **Why? – Because Values Change**

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WORKFORCE HISTORY

- **Agrarian to Industrial Society**
  - **Workforce viewed as an easily replaceable commodity**
  - **Major industrial accidents/incidents**
- **Development of Legislative and Administrative Law**
  - **Unions**
  - **Child Labor Laws**
  - **Limitation of Hours**
  - **Wage Guarantees**
  - **Safety & Health**
- **Why? – Because Values Change**

RESOURCE ECONOMICS

- **Environmental & Labor Laws Redefined Internalization of Cost**

1. **Rationed Resource Supply (Conservation, Permits, Emission Limits, Skilled/trained workforce)**
2. **Created New Cost (Penalties) for non-compliance**

ENVIRONMENTAL SUCCESS

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- **Managed Risk of Non-Compliance**
  - **4,196 Hazardous Waste Cleanup Sites Completed**
  - **Enforcement Actions down 91% since 1993**
- **Managed Hazmat Processes**
  - **DoD accounts for < 0.1% of US TRI Releases**
  - **DoD accounts for < 10% of US FedGov TRI Releases**
  - **Individual private sector sites have TRI releases levels exceeding DOD cumulative levels**
- **Solid Waste Diversion ahead of 2005 goals**
- **More T&E species/acre than any other Federal Land Manager**

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SAFETY AND OCCUPATIONAL HEALTH SUCCESS

- **Managed Risk of Non-Compliance**
  - **20% reduction in Risk Assessment Codes in FY 03**
  - **Below OSHA threshold for targeted inspections**
    - **FY03 Total Case Create Rate - 2.82**
    - **FY03 Total Lost Time Case Rate - 1.21**

- **Managed Mishaps**
  - **Decrease in aviation flight Class A mishaps in FY03**
    - **50% reduction of aviation-related fatalities and fatality rate per 100,000 hours**
  - **Steady decrease in lost work-day rates from FY00**

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CHALLENGES REMAINING

- **Underestimated Risk to Resource Supply and Capability**
  - **Loss of access to necessary resources**
  - **Increased operational costs/work-arounds**
- **Institutionalized Reactive Budgeting**
  - **Level 0, 1, RACs are primary basis for funding**
  - **Makes regulator de facto manager of infrastructure resources**
- **Can Cause**
  - **Encroachment**
  - **Lost productivity**

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DEFINITIONS

Resource Base

Accumulated set of natural, built, statutory and workforce elements needed to effectively conduct operations at an installation or range

Natural Infrastructure

Combined natural resource elements used at an installation, e.g. water, airshed, air space, open space, flora, fauna

Statutory Infrastructure

Rights of ownership or access needed to conduct operations, e.g. clean air act permits

DEFINITIONS (Cont)

Workforce

Assigned personnel allotment needed to accomplish the mission

Sustain, Restore & Modernize (SRM)

Calculated level of investment targeted to sustain, restore and modernize infrastructure (previously applied only to built infrastructure)

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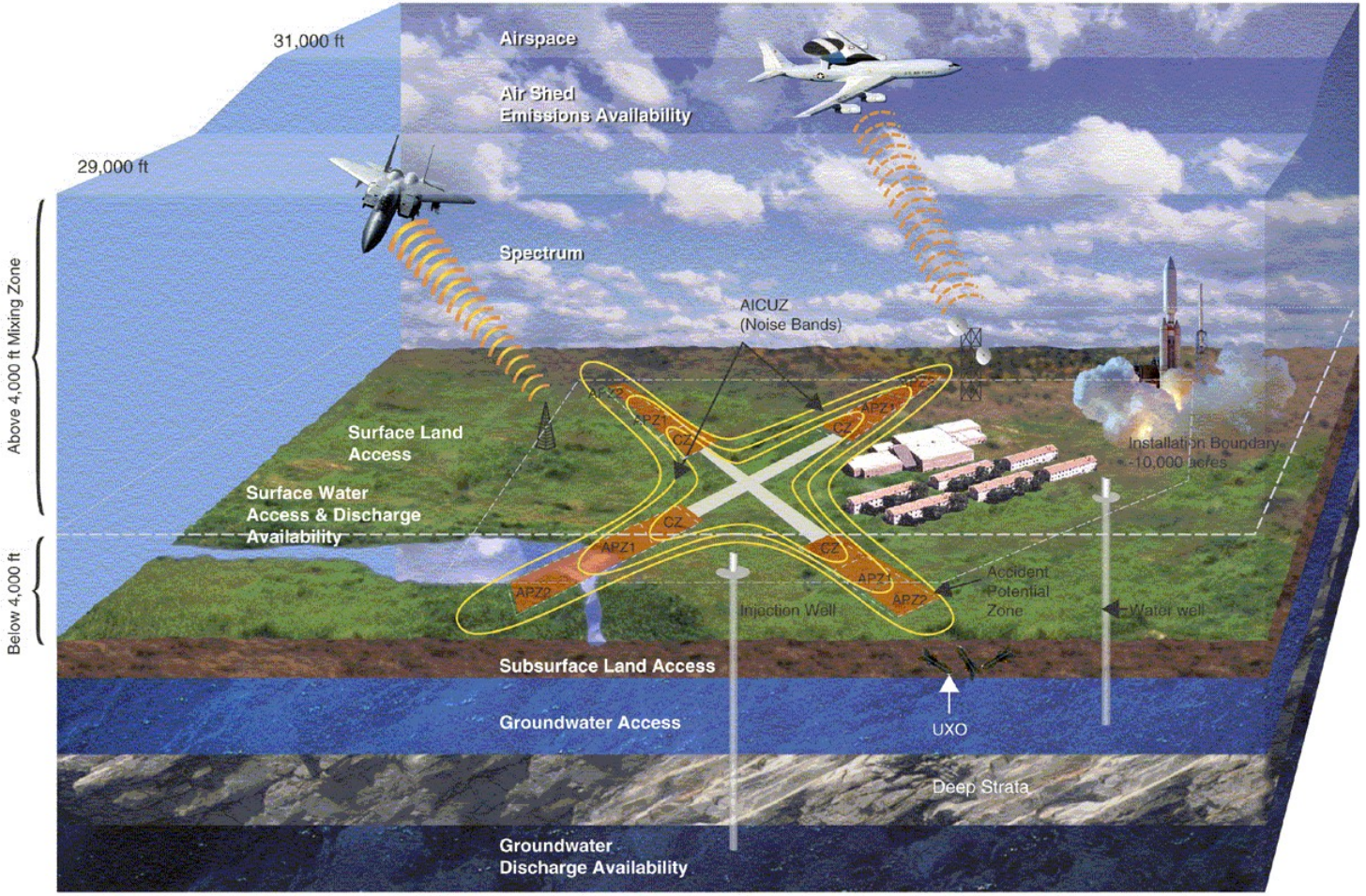
THE RESOURCE BASE



Components of "Natural, Statutory & Workforce Infrastructure"

- **Airspace**
- **Air Shed Emissions Availability**
- **AICUZ (Noise Bands)**
- **Groundwater Access**
- **Groundwater Discharge Availability**
- **Surface Land Access**
- **Surface Water Access & Discharge Availability**
- **Subsurface Land Access**
- **Spectrum**

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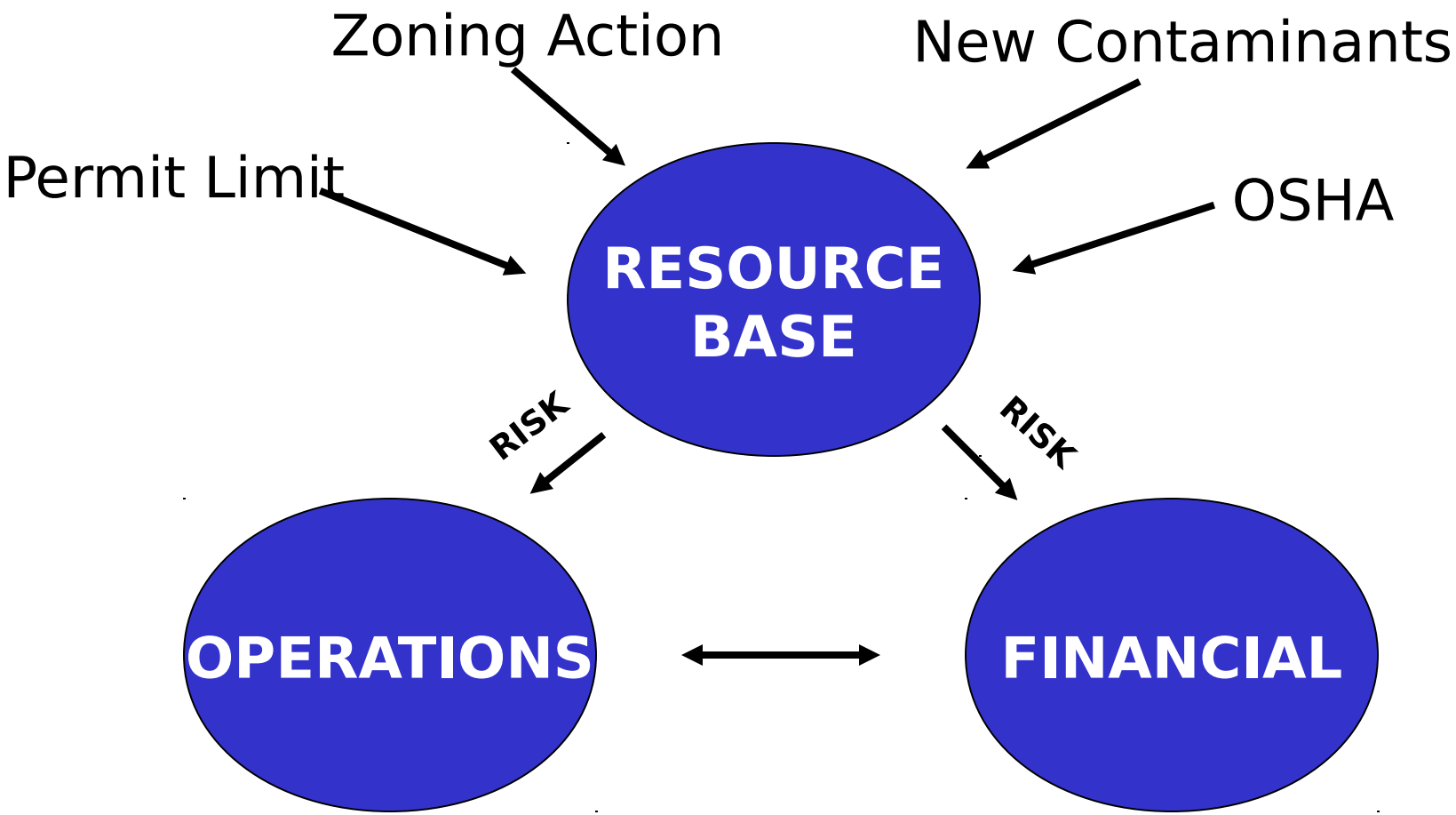
ENCROACHMENT RISK

Competing Needs



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ESOH TRANSFORMATION

- **GOAL: sustain, restore & modernize natural, statutory & workforce infrastructure to ensure operational capability**
  - **Health protection and regulatory compliance *inherent* in operability**
- **Principles:**
  1. **Identify operational and financial risks to resource requirements in an objective, quantified manner**
  2. **Make informed risk management decisions through total cost visibility for ESOH resource sustainment**
  3. **Leverage equity and knowledge value of the ESOH resource portfolio**
  4. **Manage risk through investment that supports operational and regulatory requirements**

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1. Identify Operational and Financial Risks to Resource Requirements

- **Formal modeling developed to quantify resource capability needed and available to support operational needs**
- **Enables proactive stance on emerging issues affecting resource base**
- **Memorialize requirements in Base General Plan**
- **Key metrics to operations as part of ESOHMS implementation, e.g.**
  - **Permitted tons of air emissions**
  - **Restored land for available operational use**
  - **Workforce availability (under development)**

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2. Total Investment & Cost Visibility

- **Resource sustainment carried through numerous funding lines**
  - **MILCON, Acquisition, O&M**
- **Total Costs and Liabilities must be identified to inform future resource investment decision**
- **Efforts underway to understand current state and improve visibility**
  - **ESOH cost audit**
  - **FM Transformation**

3. Leveraging Asset and Knowledge Value

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- **Resources are a commodity with an intrinsic or service value**
  - **Tools exist to inventory and appraise resources, e.g.**
    - **Expanding GSA appraisal capability to include natural infrastructure, e.g. value of bankable wetlands**
- **Resource value leverageable in managing risk more effectively and efficiently**
- **Enables communication/negotiation from positive position**
- **Applying previous experience and knowledge enhances future performance and effectiveness**

4. Manage Risk Through Investme That Supports Operational and Regulatory Requirements

- **Currently**
  - **DPG tied to regulatory requirements**
  - **Goal: No open enforcement actions**
  - **Goal: Federal Facility Agreement milestones**

Therefore

- **Budget tied to regulatory requirements**
  - **Level 0, 1 prioritization, FFA requirements**
  - **Investment to sustain operations (P2, conservation, permit enhancement) not always eligible**

Better Goal

- **Transform to investment strategy (SRM) that enhances operational capability and value while achieving compliance**

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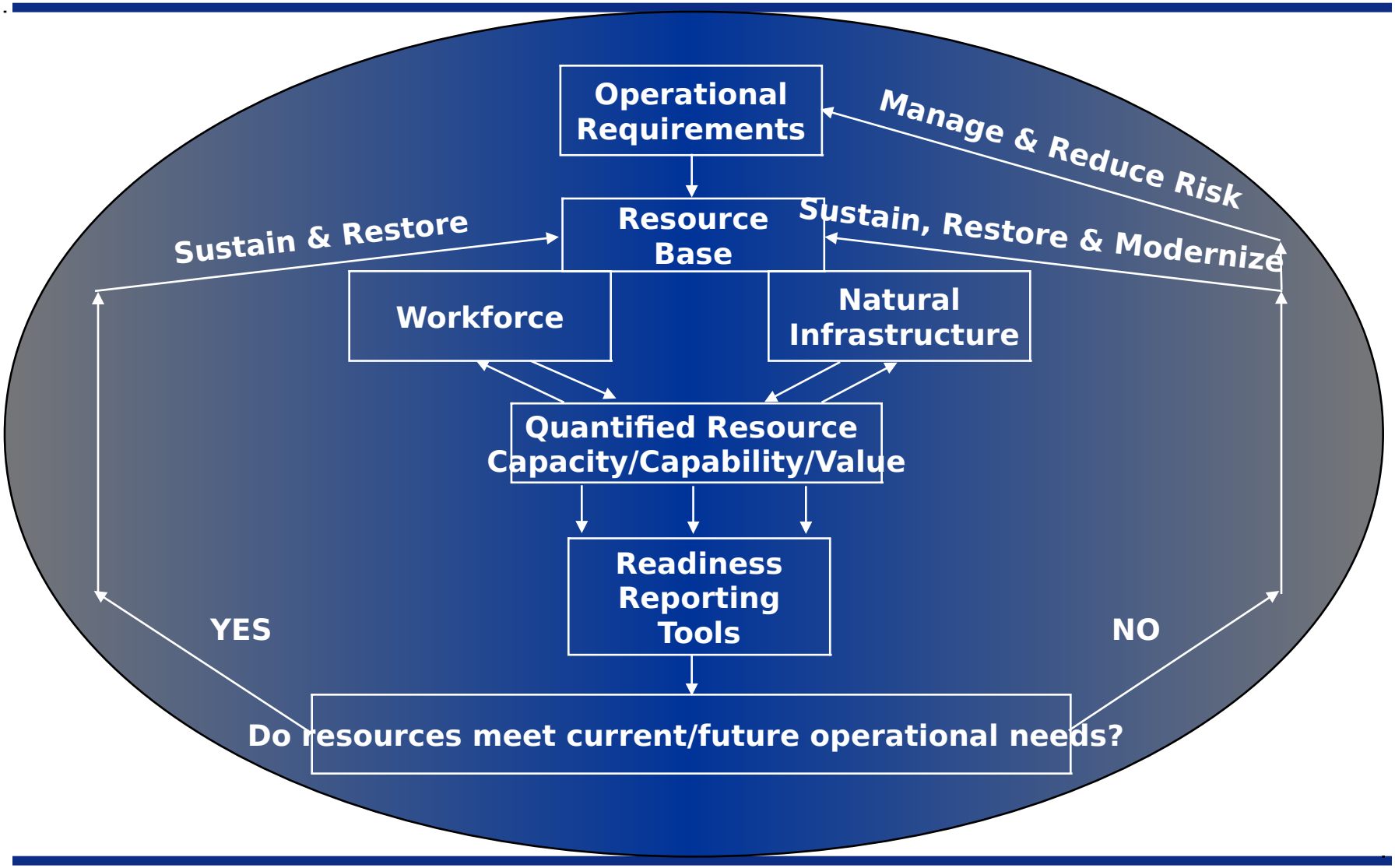
The Operationally-Driven ESOH Management System



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RCM: Capability vs. Requirements Comparison

Resource Category	Requirements		Capacity		Resource Readiness Rating	Competing Needs
	Operational Requirements	Resource Requirements	Resource Availability (currently available)	Operational Capability (currently provided)	RO 1-3 RR RD 1-3	
Airspace						
Air Shed Emissions Availability						
Surface Land Access						
Subsurface Land Access						
Sea Space						
Surface Water Access (Supply)						
Surface Water Discharge Availability						
Groundwater Access (Supply)						
Groundwater Discharge Availability						
Spectrum						

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RESOURCE READINESS RATINGS* Relationship to existing readiness ratings

Opportunity

Adequate

Degraded

	DESCRIPTIVE RATING	RATING CODE	SORTS Relationship
> 140%		RO3	C1
121 – 140%		RO2	
111 – 120%		RO1	
110 – 90%		RR	
89 – 80%		RD1	C2
79 – 60%		RD2	C3
< 60%		RD3	C4

SORTS – Status of Resources and Training System

RO = Resource Opportunity

RD = Resource Degradation

* Percentages results from comparison of resource availability to resource requirements, using 100% as the baseline for breakpoints.

RESOURCE READINESS RATINGS for Pilot Test Range

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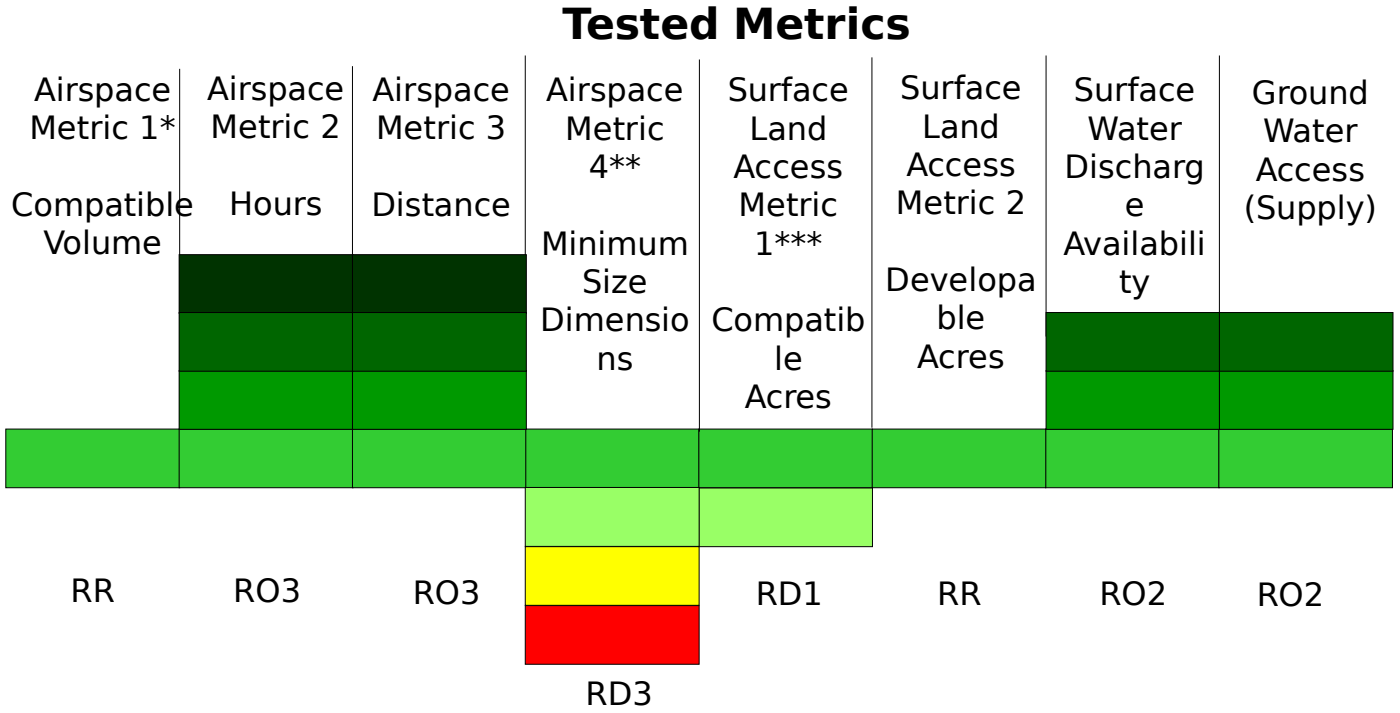

- Range has some resource opportunity

***Approximately 1.4% airspace encroachment using Metric #1 at range**

****There is no validated method in AF to size airspace for Metric 4. Required airspace dimensions generated by 20 FW staff for Basic Surface Attack (pilot test purposes)**

*****Approximately 12.1% off-range surface land encroachment using Metric #1**

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ENVIRONMENTAL TRANSFORMATION:

Airshed Resources at McGuire AFB

- Replacing C-141s with C-17s
- Ozone Non-attainment Area
- Near Limit on NOx "Budget"
- P2 Efforts Created "Head Room" in VOC "Budget"
- Traded VOC "Head Room" for NOx
- Increased Resource Availability = Doubled Mission Capacity

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SOH TRANSFORMATION: Knowledge Value of Gas Mask Fit-Testing

- **Gas-mask fit-testing is currently done for individual mask ("fit to face")**
- **MCU-2 series study showed that individuals achieved same level of protection for same-size gas mask**
- **Policy change for fit-testing requirement to size rather than individual mask is being coordinated**

- **Result: Savings on manpower & resources**
  - **Streamlines QNFT due to short-notice deployments**
  - **Alleviates burdens created by gas-mask shortages**

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SOH TRANSFORMATION: F/A-22

- **Reduced ESOH burden and total costs**
  - **No ODCs, hydrazine, methylene dianiline**
  - **Reduced VOCs, beryllium**
  - **Non-chromated exterior primer**
  - **Reduced Cd-plated fasteners by 99%**
  - **While louder, reduced noise duration on ground and in air (designed out many maintenance/inspection tasks)**
    - **Super-cruise rather than after-burner**
    - **Test cell requirements reduced 50%**
    - **Engine maintenance run-ups reduced 95%**
  - **Two for one trade with F-15s**
    - **F-15Cs use 250% more fuel in after burner**
    - **F/A-22 uses 6.6M lbs less in annual ground ops**
    - **Requires fewer maintainers**

Questions?